

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
14 April 2005 (14.04.2005)

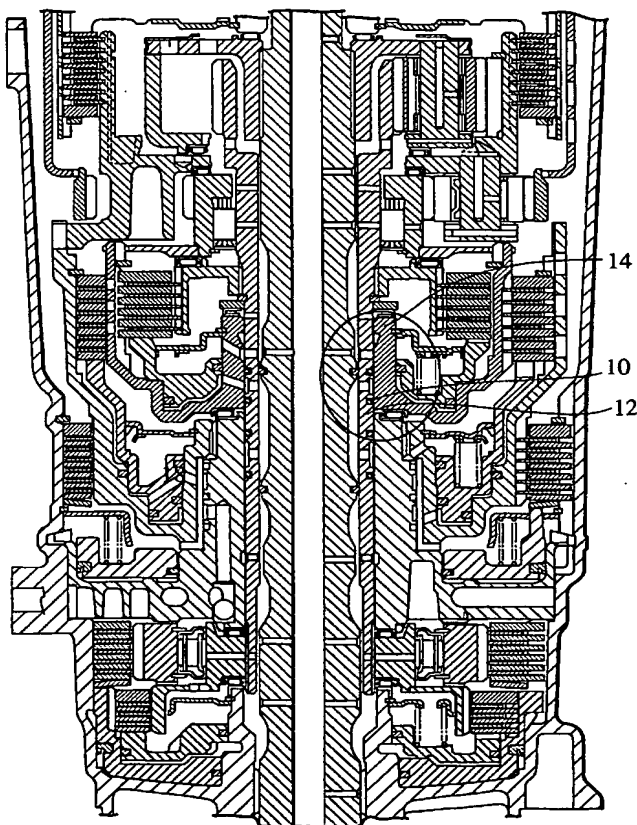
PCT

(10) International Publication Number  
**WO 2005/033551 A1**

- (51) International Patent Classification<sup>7</sup>: **F16F 15/32**, F16J 15/34, 15/48
- (21) International Application Number: PCT/JP2004/014700
- (22) International Filing Date:  
29 September 2004 (29.09.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
2003-344103 2 October 2003 (02.10.2003) JP
- (71) Applicant (for all designated States except US): **NISSAN MOTOR CO., LTD.** [JP/JP]; 2, Takara-cho, Kanagawa-ku, Yokohama-shi, Kanagawa, 2210023 (JP).
- (72) Inventors; and
- (73) Inventors/Applicants (for US only): **OTA, Tomohito** [JP/JP]. **HASHIMOTO, Tomihito** [JP/JP]. **YAMAMOTO, Yasuaki** [JP/JP]. **KUSANO, Hiroo** [JP/JP].
- (74) Agents: **MIYOSHI, Hidekazu** et al.; Toranomon Kotohira Tower, 2-8, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: SEAL RING AND SEAL DEVICE



(57) Abstract: A seal ring (10) of the present invention seals operating oil hermetically and is attached to an annular seal ring groove (16) provided on an outer circumference of a shaft member (12). The seal ring (10) includes fluororesin, modified fluororesin formed by being irradiated with an ionizing radiation in a range from 1 kGy to 10 MGy inclusive in a state of being heated up to a melting point thereof or higher under an inert gas atmosphere with an oxygen partial pressure of 1.33 kPa or less, and synthetic resin having a surface energy ranging from +0 N/cm to 20 ~10-5 N/cm inclusive of that of the operating oil.

WO 2005/033551 A1



(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— *with international search report*